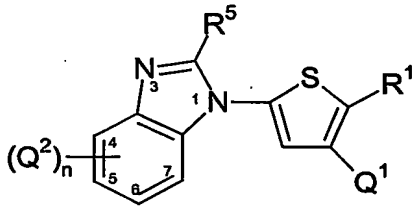
CLAIMS

1. A compound of formula (I):



I

wherein:

R^1 is selected from the group consisting of H, alkyl, alkenyl, alkynyl, $-C(O)R^7$, $-CO_2R^7$, $-C(O)NR^7R^8$, $-C(O)N(R^7)OR^8$, $-C(O)N(R^7)-R^2-OR^8$, $-C(O)N(R^7)$-Ph, $-C(O)N(R^7)-R^2$-Ph, $-C(O)N(R^7)C(O)R^8$, $-C(O)N(R^7)CO_2R^8$, $-C(O)N(R^7)C(O)NR^7R^8$, $-C(O)N(R^7)S(O)_2R^8$, $-R^2-OR^7$, $-R^2-O-C(O)R^7$, $-C(S)R^7$, $-C(S)NR^7R^8$, $-C(S)N(R^7)$-Ph, $-C(S)N(R^7)-R^2$-Ph, $-R^2-SR^7$, $-C(=NR^7)NR^7R^8$, $-C(=NR^7)N(R^8)$-Ph, $-C(=NR^7)N(R^8)-R^2$-Ph, $-R^2-NR^7R^8$, -CN, $-OR^7$, $-S(O)_fR^7$, $-S(O)_2NR^7R^8$, $-S(O)_2N(R^7)$-Ph, $-S(O)_2N(R^7)-R^2$-Ph, $-NR^7R^8$, $N(R^7)$-Ph, $-N(R^7)-R^2$-Ph, $-N(R^7)-SO_2R^8$ and Het;

Ph is phenyl optionally substituted from 1 to 3 times with a substituent selected from the group consisting of halo, alkyl, -OH, $-R^2$-OH, -O-alkyl, $-R^2$-O-alkyl, $-NH_2$, -N(H)alkyl, $-N(alkyl)_2$, -CN and $-N_3$;

Het is a 5-7 membered heterocycle having 1, 2, 3 or 4 heteroatoms selected from N, O and S, or a 5-6 membered heteroaryl having 1, 2, 3 or 4 heteroatoms selected from N, O and S, each optionally substituted from 1 to 2 times with a substituent selected from the group consisting of halo, alkyl, oxo, -OH, $-R^2$-OH, -O-alkyl, $-R^2$-O-alkyl, $-NH_2$, -N(H)alkyl, $-N(alkyl)_2$, -CN and $-N_3$;

Q^1 is a group of formula: $-(R^2)_a-(Y^1)_b-(R^2)_c-R^3$

a, b and c are the same or different and are each independently 0 or 1 and at least one of a or b is 1;

n is 0, 1, 2, 3 or 4;

Q^2 is a group of formula: $-(R^2)_{aa}-(Y^2)_{bb}-(R^2)_{cc}-R^4$

or two adjacent Q^2 groups are selected from the group consisting of alkyl, alkenyl, $-OR^7$, $-S(O)_fR^7$ and $-NR^7R^8$ and together with the carbon atoms to

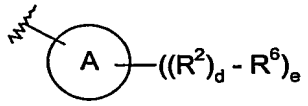
which they are bound, they form a C_{5-6}cycloalkyl, C_{5-6}cycloalkenyl, phenyl, 5-7 membered heterocycle having 1 or 2 heteroatoms selected from N, O and S, or 5-6 membered heteroaryl having 1 or 2 heteroatoms selected from N, O and S;

aa, bb and cc are the same or different and are each independently 0 or 1;

each Y^1 and Y^2 is the same or different and is independently selected from the group consisting of -O-, $-S(O)_f-$, $-N(R^7)-$, -C(O)-, -OC(O)-, $-CO_2-$, $-C(O)N(R^7)-$, $-C(O)N(R^7)S(O)_2-$, $-OC(O)N(R^7)-$, $-OS(O)_2-$, $-S(O)_2N(R^7)-$, $-S(O)_2N(R^7)C(O)-$, $-N(R^7)S(O)_2-$, $-N(R^7)C(O)-$, $-N(R^7)CO_2-$ and $-N(R^7)C(O)N(R^7)-$;

each R^2 is the same or different and is independently selected from the group consisting of alkylene, alkenylene and alkynylene;

each R^3 and R^4 is the same or different and is each independently selected from the group consisting of H, halo, alkyl, alkenyl, alkynyl, $-C(O)R^7$, $-C(O)NR^7R^8$, $-CO_2R^7$, $-C(S)R^7$, $-C(S)NR^7R^8$, $-C(=NR^7)R^8$, $-C(=NR^7)NR^7R^8$, $-CR^7=N-OR^7$, $-OR^7$, $-S(O)_fR^7$, $-S(O)_2NR^7R^8$, $-NR^7R^8$, $-N(R^7)C(O)R^8$, $-N(R^7)S(O)_2R^8$, $-NO_2$, -CN, $-N_3$ and a group of formula (ii):



ii

wherein:

Ring A is selected from the group consisting of C_{5-10}cycloalkyl, C_{5-10}cycloalkenyl, aryl, 5-10 membered heterocycle having 1, 2 or 3 heteroatoms selected from N, O and S and 5-10 membered heteroaryl having 1, 2 or 3 heteroatoms selected from N, O and S

each d is 0 or 1;

e is 0, 1, 2, 3 or 4;

each R^6 is the same or different and is independently selected from the group consisting of H, halo, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, Ph, Het, $-CH(OH)-R^2-OH$, $-C(O)R^7$, $-CO_2R^7$, $-CO_2-R_2-Ph$, $-CO_2-R^2-Het$, $-C(O)NR^7R^8$, $-C(O)N(R^7)C(O)R^7$, $-C(O)N(R^7)CO_2R^7$, $-C(O)N(R^7)C(O)NR^7R^8$, $-C(O)N(R^7)S(O)_2R^7$, $-C(S)R^7$, $-C(S)NR^7R^8$, $-C(=NR^7)R^8$, $-C(=NR^7)NR^7R^8$, $-CR^7=N-OR^8$, =O, $-OR^7$, $-OC(O)R^7$, -OC(O)Ph, -OC(O)Het, $-OC(O)NR^7R^8$,

-O-R^2-$S(O)_2R^7$, -$S(O)_fR^7$, -$S(O)_2NR^7R^8$, -$S(O)_2$Ph, -$S(O)_2$Het, -NR^7R^8, -$N(R^7)C(O)R^8$, -$N(R^7)CO_2R^8$, -$N(R^7)$-R^2-CO_2R^8, -$N(R^7)C(O)NR^7R^8$, -$N(R^7)$-R^2-$C(O)NR^7R^8$, -$N(R^7)C(O)$Ph, -$N(R^7)C(O)$Het, -$N(R^7)$Ph, -$N(R^7)$Het, -$N(R^7)C(O)NR^7$-R^2-NR^7R^8, -$N(R^7)C(O)N(R^7)$Ph, -$N(R^7)C(O)N(R^7)$Het, -$N(R^7)C(O)N(R^7)$-R^2-Het, -$N(R^7)S(O)_2R^8$, -$N(R^7)$-R^2-$S(O)_2R^8$, -NO_2, -CN and -N_3;

wherein when Q^1 is defined where b is 1 and c is 0, R^3 is not halo, -$C(O)R^7$, -$C(O)NR^7R^8$, -CO_2R^7, -$C(S)R^7$, -$C(S)NR^7R^8$, -$C(=NR^7)R^8$, -$C(=NR^7)NR^7R^8$, -CR^7=N-OR^7, -OR^7, -$S(O)_fR^7$, -$S(O)_2NR^7R^8$, -NR^7R^8, -$N(R^7)C(O)R^8$, -$N(R^7)S(O)_2R^8$, -NO_2, -CN or -N_3;

wherein when Q^2 is defined where bb is 1 and cc is 0, R^4 is not halo, -$C(O)R^7$, -$C(O)NR^7R^8$, -CO_2R^7, -$C(S)R^7$, -$C(S)NR^7R^8$, -$C(=NR^7)R^8$, -$C(=NR^7)NR^7R^8$, -CR^7=N-OR^7, -OR^7, -$S(O)_fR^7$, -$S(O)_2NR^7R^8$, -NR^7R^8, -$N(R^7)C(O)R^8$, -$N(R^7)S(O)_2R^8$, -NO_2, -CN or -N_3;

R^5 is selected from the group consisting of H, halo, alkyl, cycloalkyl, OR^7, -$S(O)_fR^7$, -NR^7R^8, -$NHC(O)R^7$, -$NHC(O)NR^7R^8$ and -$NHS(O)_2R^7$;

f is 0, 1 or 2; and

each R^7 and each R^8 are the same or different and are each independently selected from the group consisting of H, alkyl, alkenyl, alkynyl, cycloalkyl and cycloalkenyl;

wherein when R^1 is -CO_2CH_3 and n is 0, Q^1 is not -OH;

or a pharmaceutically acceptable salt, solvate or physiologically functional derivative thereof.

2. The compound according to claim 1, wherein R^1 is selected from the group consisting of -$C(O)R^7$, -CO_2R^7 and -$C(O)NR^7R^8$.

3. The compound according to claim 1, wherein R^1 is selected from the group consisting of -CO_2R^7 and -$C(O)NR^7R^8$.

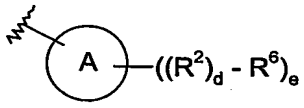
4. The compound according to any of claims 1-3, wherein b is 1.

5. The compound according to any of claims 1-4, wherein Q^1 is defined wherein b is 1 and Y^1 is selected from $-O-$, $-N(R^7)-$, $-C(O)-$, $-OC(O)-$, $-C(O)N(R^7)-$, $-OS(O)_2-$, $-S(O)_2N(R^7)-$, $-N(R^7)SO_2-$ and $-N(R^7)C(O)-$.

6. The compound according to claim 5, wherein Q^1 is defined wherein b is 1 and Y^1 is selected from $-O-$, $-N(R^7)-$, $-C(O)-$, $-OS(O)_2-$, $-N(R^7)SO_2-$ and $-N(R^7)C(O)-$.

7. The compound according to any of claims 1-6, wherein c is 1.

8. The compound according to any of claims 1-7, wherein R^3 is selected from the group consisting of H, alkyl, alkenyl, alkynyl, and a group of formula (ii):



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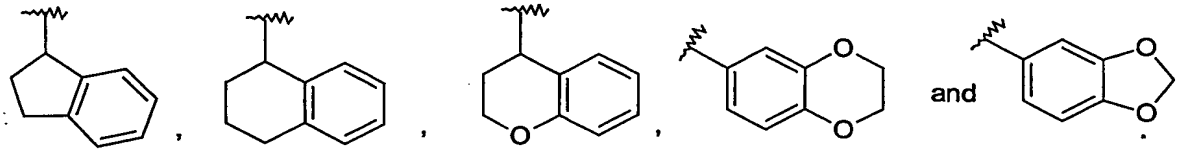
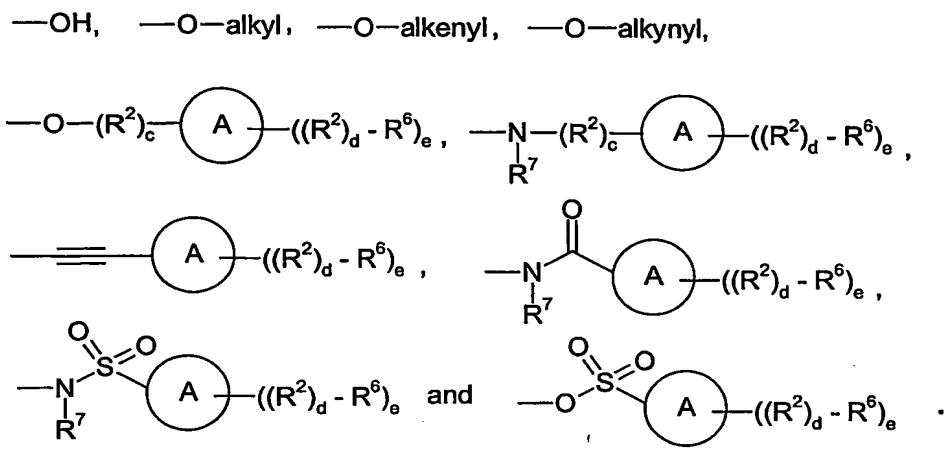
9. The compound according to any of claims 1-8, wherein R^3 is a group of formula (ii) and Ring A is selected from aryl, 5-10 membered heterocycle having 1, 2 or 3 heteroatoms selected from N, O and S and 5-10 membered heteroaryl having 1, 2 or 3 heteroatoms selected from N, O and S.

10. The compound according to any of claims 1-8, wherein R^3 is a group of formula (ii) and Ring A is selected from the group consisting of cycloalkyl, tetrahydropyran, tetrahydrofuran, morpholine, piperidine, phenyl, naphthyl, thiophene, furan, pyrrole, pyrrolidine, pyrrolidinone, imidazole, benzofuran, benzimidazole, pyridyl,



11. The compound according to any of claims 1-10, wherein Q^1 is selected from the group consisting of



12. The compound according to any of claims 1-11, wherein R^3 is a group of formula (ii) and e is 0, 1, 2 or 3.

13. The compound according to any of claims 1-12, wherein R^3 is a group of formula (ii) and d is 0.

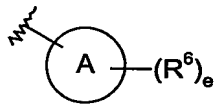
14. The compound according to any of claims 1-13, wherein wherein R^3 is a group of formula (ii) and each R^6 is the same or different and is independently selected from the group consisting of H, halo, alkyl, alkenyl, alkynyl, cycloalkyl, $-OR^7$, $-S(O)_fR^7$, $-SO_2NR^7R^8$, $-NR^7R^8$, $-N(R^7)S(O)_2R^8$, $-NO_2$ and -CN.

15. The compound according to any of claims 1-14, wherein n is 0, 1 or 2.

16. The compound according to any of claims 1-15, wherein Q^2 is defined wherein bb is 1 and Y^2 is $-O-$, $-S(O)_f-$, $-N(R^7)-$, $-C(O)-$, $-OC(O)-$, $-CO_2-$, $-C(O)N(R^7)-$, $-OS(O)_2-$, $-N(R^7)S(O)_2-$, $-N(R^7)C(O)-$, $-N(R^7)CO_2-$ and $-N(R^7)C(O)N(R^7)-$.

17. The compound according to any of claims 1-16, wherein cc is 1.

18. The compound according to any of claims 1-17, wherein each R^4 is the same or different and is independently selected from the group consisting of H, halo, alkyl, alkenyl, alkynyl, $-C(O)NR^7R^8$, $-OR^7$, $-S(O)_fR^7$, $-S(O)_2NR^7R^8$, $-NR^7R^8$, $-N(R^7)C(O)R^8$, $-N(R^7)S(O)_2R^8$, $-NO_2$, -CN, $-N_3$ and a group of formula (ii):



ii

19. The compound according to any of claims 1-18, wherein R^5 is H, halo, alkyl or $-NR^7R^8$.

20. A compound selected from the group consisting of:

5-(5,6-Dimethoxy-1*H*-benzimidazol-1-yl)-3-{[2-(trifluoromethyl)-benzyl]oxy}thiophene-2-carboxamide;

5-(5-(Methyloxy)-6-{[2-(4-methyl-1-piperazinyl)ethyl]oxy}-1*H*-benzimidazol-1-yl)-3-({[2-(trifluoromethyl)phenyl]methyl}oxy)-2-thiophenecarboxamide;

3-[1-(2-Chlorophenyl)ethoxy]-5-(5,6-dimethoxy-1*H*-benzimidazol-1-yl)thiophene-2-carboxamide;

5-(5,6-Dimethoxy-1*H*-benzimidazol-1-yl)-3-[1-(2-methylphenyl)ethoxy] thiophene-2-carboxamide;

5-(5-Amino-1*H*-benzimidazol-1-yl)-3-[1-(2-chlorophenyl)ethoxy]thiophene-2-carboxamide;

5-{6-[(4-Piperidinylmethyl)oxy]-1*H*-benzimidazol-1-yl}-3-({[2-(trifluoromethyl)phenyl]-methyl}oxy)-2-thiophenecarboxamide;

5-(6-(Methyloxy)-5-{[3-(2-oxo-1-pyrrolidinyl)propyl]oxy}-1*H*-benzimidazol-1-yl)-3-({[2-(trifluoromethyl)phenyl]methyl}oxy)-2-thiophenecarboxamide;

5-[6-{[3-(Dimethylamino)propyl]oxy}-5-(methyloxy)-1*H*-benzimidazol-1-yl]-3-({[2-(trifluoromethyl)phenyl]methyl}oxy)-2-thiophenecarboxamide;

5-(5-(Methyloxy)-6-{[2-(4-morpholinyl)ethyl]oxy}-1*H*-benzimidazol-1-yl)-3-({[2-(trifluoromethyl)phenyl]methyl}oxy)-2-thiophenecarboxamide;

5-[6-(2-Morpholin-4-ylethoxy)-1*H*-benzimidazol-1-yl]-3-{[2-(trifluoromethyl)benzyl]oxy}thiophene-2-carboxamide;

5-[6-(2-Pyrrolidin-1-ylethoxy)-1*H*-benzimidazol-1-yl]-3-{[2-(trifluoromethyl)benzyl]oxy}thiophene-2-carboxamide;

5-[5-Fluoro-6-(2-morpholin-4-ylethoxy)-1*H*-benzimidazol-1-yl]-3-{[2-(trifluoromethyl)benzyl]oxy}thiophene-2-carboxamide;

5-[6-(Methylsulfonyl)-1*H*-benzimidazol-1-yl]-3-{[2-(trifluoromethyl)benzyl]oxy}-thiophene-2-carboxamide;

3-[(3-Bromopyridin-4-yl)methoxy]-5-(5,6-dimethoxy-1*H*-benzimidazol-1-yl)thiophene-2-carboxamide;

5-(5,6-Dimethoxy-1*H*-benzimidazol-1-yl)-3-{[2-(trifluoromethoxy)benzyl] oxy} thiophene-2-carboxamide;

3-{[2-(Difluoromethoxy)benzyl]oxy}-5-(5,6-dimethoxy-1*H*-benzimidazol-1-yl)thiophene-2-carboxamide;

3-[(2-Chloropyridin-3-yl)methoxy]-5-(5,6-dimethoxy-1H-benzimidazol-1-yl)thiophene-2-carboxamide;

5-(5,6-Dimethoxy-1*H*-benzimidazol-1-yl)-3-[(2-fluoropyridin-3-yl)methoxy]thiophene-2-carboxamide;

3-[(2-Aminopyridin-4-yl)methoxy]-5-(5,6-dimethoxy-1*H*-benzimidazol-1-yl)thiophene-2-carboxamide;

3-[(6-Chloro-1,3-benzodioxol-5-yl)methoxy]-5-(5,6-dimethoxy-1*H*-benzimidazol-1-yl)thiophene-2-carboxamide;

5-(5,6-Dimethoxy-1*H*-benzimidazol-1-yl)-3-[(2-nitrobenzyl)oxy]thiophene-2-carboxamide;

3-[(3-Aminobenzyl)oxy]-5-(5,6-dimethoxy-1*H*-benzimidazol-1-yl)thiophene-2-carboxamide;

5-(6-Bromo-1*H*-benzimidazol-1-yl)-3-{[2-(trifluoromethyl)benzyl]-oxy}thiophene-2-carboxamide;

3-[(2,6-Dichlorobenzyl)oxy]-5-(5,6-dimethoxy-1*H*-benzimidazol-1-yl)thiophene-2-carboxamide;

3-[(2-Bromobenzyl)oxy]-5-(5,6-dimethoxy-1*H*-benzimidazol-1-yl)thiophene-2-carboxamide;

5-(5,6-Dimethoxy-1*H*-benzimidazol-1-yl)-3-[(2-formylbenzyl)oxy]thiophene-2-carboxamide;

5-(1*H*-Benzimidazol-1-yl)-3-{[2-(trifluoromethyl)benzyl]oxy}thiophene-2-carboxamide;

5-(1*H*-Benzimidazol-1-yl)-3-[(2-nitrobenzyl)oxy]thiophene-2-carboxamide;

5-(6-Methoxy-1*H*-benzimidazol-1-yl)-3-{[2-(trifluoromethyl)benzyl]oxy}thiophene-2-carboxamide;

2-(Aminocarbonyl)-5-(5,6-dimethoxy-1*H*-benzimidazol-1-yl)thien-3-yl 2-methylbenzenesulfonate

and pharmaceutically acceptable salts, solvates and physiologically functional derivatives thereof.

21. A pharmaceutical composition comprising a compound according to any of claims 1-20.

22. The pharmaceutical composition according to claim 21 further comprising a pharmaceutically acceptable carrier, diluent or excipient.

23. The pharmaceutical composition according to claim 21 further comprising a chemotherapeutic agent.

24. A method for treating a condition mediated by PLK in an animal, said method comprising administering to the animal a therapeutically effective amount of a compound according to any of claims 1-20.

25. A method for treating a susceptible neoplasm in an animal, said method comprising administering to the animal a therapeutically effective amount of a compound according to any of claims 1-20.

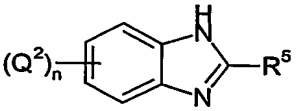
26. The method according to claim 25, wherein said susceptible neoplasm is selected from the group consisting of breast cancer, colon cancer, lung cancer, prostate cancer, lymphoma, leukemia, endometrial cancer, melanoma, ovarian cancer, pancreatic cancer, squamous carcinoma, carcinoma of the head and neck, and esophageal carcinoma.

27. A method for treating a condition characterized by inappropriate cellular proliferation in an animal, said method comprising administering to the animal a therapeutically effective amount of a compound according to any of claims 1-20.

28. A method for inhibiting proliferation of a cell, said method comprising contacting the cell with an amount of a compound according to any of claims 1-20 sufficient to inhibit proliferation of the cell.

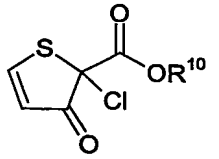
29. A method for inhibiting mitosis in a cell, said method comprising administering to the cell an amount of a compound according to any of claims 1-20 sufficient to inhibit mitosis in the cell.

30. A process for preparing a compound according to any of claims 1-20, said process comprising reacting a compound of formula (III):



III

with a compound of formula (IV):



IV

wherein R^{10} is selected from the group consisting of alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl and suitable carboxylic acid protecting groups.

31. The process according to claim 30, said process further comprising the step of converting a compound of formula (I) to a pharmaceutically acceptable salt, solvate or physiologically functional derivative thereof.

32. The process according to any of claims 30-31 further comprising the step of converting a compound of formula (I) or a pharmaceutically acceptable salt, solvate or physiologically functional derivative thereof to another compound of formula (I) or a pharmaceutically acceptable salt, solvate or physiologically functional derivative thereof.

33. A compound according to any of Claims 1-20 for use in therapy.

34. A compound according to any of Claims 1-20 for use in the treatment of a condition mediated by PLK in an animal.

35. A compound according to any of claims 1-20 for use in the treatment of a susceptible neoplasm in an animal.

36. A compound according to any of claims 1-20 for use in the treatment of a condition characterized by inappropriate cellular proliferation in an animal.

37. A compound according to any of claims 1-20 for use in inhibiting proliferation of a cell.

38. A compound according to any of claims 1-20 for use in inhibiting mitosis in a cell.

39. The use of a compound according to any of claims 1-20 for the preparation of a medicament for the treatment of condition mediated by PLK in an animal.

40. The use of a compound according to any of claims 1-20 for the preparation of a medicament for the treatment of a susceptible neoplasm in an animal.

41. The use of a compound according to any of claims 1-20 for the preparation of a medicament for the treatment of a condition characterized by inappropriate cellular proliferation.

42. A pharmaceutical composition comprising a compound according to any of claims 1-20 for use in the treatment of a susceptible neoplasm in an animal.